

**REMARKS/ARGUMENTS**

At the outset, Applicants note that the finality of the present Office Action is improper for the reasons given in the telephone conversations with the Examiner and in the paper filed on November 21, 2003, requesting reconsideration of the finality of the Office Action. The Examiner asked Applicants to put the request in writing which was done, but at this time Applicants have not received the Examiner's decision on this matter.

Claims 2-5 and 7-19 stand in the present application, claims 2, 7 and 12 having been amended. Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

In the Office Action, the Examiner has objected to claims 2, 7 and 12 for containing United Kingdom spellings of the words "analysing" and "analyse." As noted above, Applicants have amended the claims to the more conventional American spelling of these words.

The Examiner has also rejected claims 2-5, 7-9, 11-15 and 19 under 35 U.S.C. § 102(e) as being anticipated by Brown et al., and has rejected claims 10 and 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Brown et al. in view of de Hita et al. Applicants respectfully traverse the Examiner's § 102 and 103 rejections of the claims.

Brown discloses a database search system for searching record entries in a seemingly fully structured database (*cf* the record structure 76 of Figure 4, wherein each record entry in the structure corresponds to a specific search field 70, 71, . . . , 75), which record structures have been indexed, in advance, with respect to a phonetic

encoding of each of the words contained within the search fields of the structure, each phonetically encoded word being referred to as a "Soundex" term (*cf* the Soundex terms 65 in Figure 8). That is, each word within each search field 70,..., 75 of a particular record structure 76 is subject to the so called Soundex function to produce an alphanumeric code word representing that word and all of the other phonetically equivalent words to that word (e.g. Berger, and Burger as shown in Figure 8). An index entry is then created for every Soundex term, containing the record structure record numbers of records which contain that Soundex term. (*cf* column 8, lines 31 to 41, and column 10, line 60 to column 11, line 16).

Given such an index of Figure 8, searching of the database is accomplished as follows. Assume that structured input search data such as that shown as 140 in Figure 3 is input as a search term. The fields of the input search data 140 are then mapped to corresponding fields of the records structure of the database (*cf* column 8, lines 9 to 13), and then the elements 77 of the created record structure are converted to Soundex terms, as shown in Figure 6 (*cf* column 8, lines 31 to 32). The Soundex terms thus obtained are then compared to the index 61 of Soundex terms described above (*cf* column 8, lines 32 to 34), and from this comparison the matching index entries of Soundex terms indicating a plurality of term sets which reference database record structure numbers whose records contain corresponding Soundex terms are obtained (*cf* column 8, lines 34 to 47). Having obtained the record numbers of record structures which contain phonetically equivalent words to those within the input search data based on the Soundex terms, a statistical analysis technique is then used to determine which of the matched record structures most closely matches the input search term (*cf* column

7, line 48 to 64), and the most closely matching terms are output as the database match records.

As is apparent from the above description, the system of Brown relies heavily on the phonetic encoding of the content of the search fields of the various record structures, and also of the input search data, and then matching is performed between the phonetically encoded terms within the "Soundex" domain. As should be apparent from the following description of Applicants' invention, this is a completely different concept from the present invention as presently claimed.

With reference to Applicants' invention as presently claimed, therefore, and dealing first with the independent claims 2 and 7, these claims teach a method of generating an index entry for a record in a semi-structured database, and a corresponding apparatus. There is thus an important distinction from Brown in the first line of these claims, as these claims are directed towards the actual index generation method and comprise, *inter alia*, the steps of searching each field of each record to identify sequences of characters which have a format corresponding to one of a number of plurality of predetermined formats, and also, for those fields which do not have such a format, defining the characters within those fields as a free-text entry. When compared to the disclosure of Brown, it can clearly be seen that within Brown no disclosure is given of actually how the index 61 of Figure 8 is obtained, and hence Brown does not explicitly teach a method of generating an index entry as claimed in claim 2. Moreover, given that the contents of the index 61 as used in Brown are merely the phonetically encoded Soundex terms, no distinction is made within that index as to any particular field of a particular record being one of a plurality of a predetermined formats, or, if the

field is not one of those predetermined formats, it being considered a free-text entry, as set out in the claims. In contrast, within Brown each record structure appears to be in fact fully structured and hence would never contain a free-text entry, and moreover, as is apparent from Figure 8, the index of Brown merely indexes each Soundex term against the record number of each record structure irrespective of the search field of each record structure in which the indexed Soundex term is found. That is, while in the present invention we are concerned with generating an index wherein each field can be deemed to correspond to a predetermined format, or to a free text entry, the index of Brown does not contain any such information. For at least the above reasons, therefore, independent claims 2 and 7 would appear to patentably define over Brown and, therefore, neither anticipated nor rendered obvious thereby.

Turning now to the apparatus claim 11, this claims an apparatus for accessing a semi-structured database comprising, *inter alia*, input means for receiving a request for information, the request comprising a natural language phrase, a parser for parsing the natural language phrase, a slot for allocating components of the parsed request to respective slots of a slot and filler request, and a query constructor for accessing the data store in dependence on the allocated components in the slot and filler request. Thus, the invention as claimed is directed towards a database access mechanism which takes natural language phrases as input (such as the phrase "I want a plumber for my boiler, who takes visa in Ipswich", the example phrase used in the present description at page 27), and which then parses the natural language phrase to determine various verbs, nouns, prepositions, etc, within the phrase. The parsed request is then passed to the slot filler which uses the part of speech classifications given to the words within the

request to allocate the various words within the request to appropriate slots of a slot and filler request. Thus, for example, where the various slots are "transaction", "goods", "payment", "opening", "street", and "location", as in the disclosed embodiment, the nouns *plumber* and *boiler* may be allocated to the "goods" slot, the noun "*lpswich*" once identified as a place is allocated to the "location" slot, *etc.*. Having constructed such a slot and filler request, the query constructor then compares the allocated words within each slot to index entries within a group corresponding to the slot of each allocated word so as to identify index entries corresponding thereto, and to subsequently identify items within the semi-structured database corresponding to the index entries. This therefore allows different indices corresponding to the different slots for which words in the natural language phrase have been allocated to be searched, to identify potentially relevant items in the database.

Comparing the above described operation with that of Brown, it will be seen that it is completely different. To begin with, Brown does not search within a semi-structured database, as discussed above. Moreover, Brown does not receive input requests comprising natural language phrases and parse those requests so as to determine the parts of speech for the input phrase. Following from this, neither does Brown describe a slot filler arranged to allocate components of the parsed request to a slot and filler request, and nor does he describe a query constructor which makes use of the allocated components to identify corresponding index entries and subsequent items in the semi-structured database. As a consequence of these differences, claim 11 is also neither anticipated nor rendered obvious by Brown.

It should also be clear that de Hita et al. which has been cited by the Examiner for teaching "a slot filler for determining whether the request includes any verb components forming a verb or verb group" does not solve the deficiencies noted above with respect to Brown et al. Moreover, absent the hindsight of the present application, there would have been no reason for those skilled in the art to combine the references as alleged by the Examiner. Accordingly, claims 10 and 16-18 are believed to patentably define over the cited art, taken either singly or in combination.

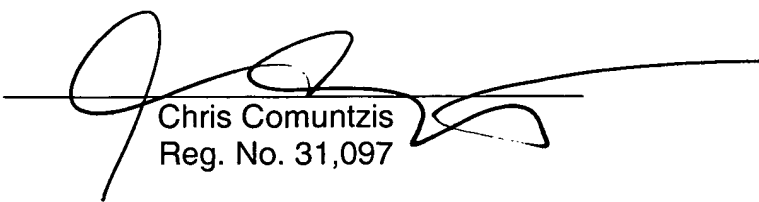
Therefore, in view of the above amendment and remarks, it is respectfully requested that the application be reconsidered and that all of claims 2-5 and 7-19, standing in the application, be allowed and that the case be passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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